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Computers and Pattern Recognition



from the U.S.S.R. —
current work on
pattern recognition
and its relation to
relevant research
in the West...

by A. G. Arkadev and
E. M. Braverman
(Translated from the Russian
by J. D. Cowan and W. Turski)

This book fills an important need for up-to-date information about Soviet developments in a rapidly-growing field. The underlying assumption throughout is that images form "compact" sets in a suitable representative "space" whose "coordinates" are the distinct "features" of the patterns presented to the machine. The image-compactness hypothesis is used as a point of reference for the analysis of different designs for the construction of pattern-recognizing machines. The algorithms underlying two well-known Western machines, the PERCEPTRON and the PAPA are also discussed in terms of this hypothesis. Contents include: Dissecting Planes Algorithm; Algorithms Based on Potentials Method; Possible Ways of Further Improvement of Cognitive Machines.

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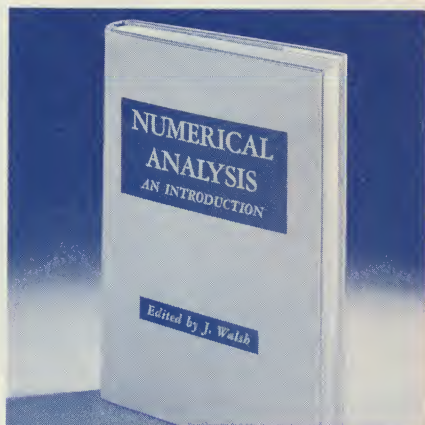
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**for scientists,
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an introduction to
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**Edited by J. Walsh, Dept. of Mathematics,
the University, Manchester, England**

(Based on a Symposium organized by the
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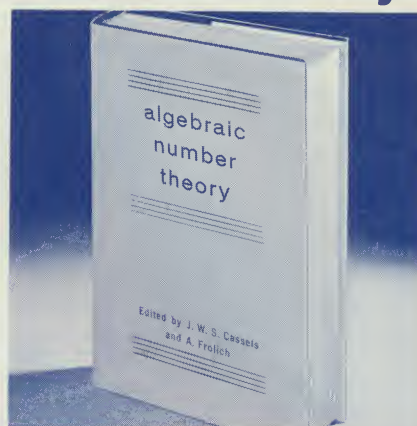
Individual chapters in this book are largely self-contained. The account of theory and methods is sufficiently detailed for readers who want to go further to study the more advanced works listed in the references. Subjects covered include linear algebra and the eigenvalue problem, ordinary and partial differential equations, methods of approximation and function minimization, and some applications of modern techniques to industrial problems. A concluding chapter considers the effect of the growth of numerical work on teaching. **Contents include: Applications of Computers to Pure Mathematics; Techniques of Operational Research; Computation in School and University Teaching.** There are two complete indexes, one classified by subject, the other by author.

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Algebraic Number Theory



**for the non-specialist
algebraist and
number theorist —
a grounding in
contemporary
basic theory**

Edited by J. W. S. Cassels and A. Frolich

(Proceedings of an Instructional Conference
organized by the London Mathematical Society —
a NATO Advanced Study Institute — with the
support of the International Mathematical Union)

The opening chapters in this work give a broad introduction to algebraic number theory; followed by the elementary and utilitarian tools needed for class field theory. The section on class field theory should dispel forever the aura of mystery which has previously surrounded the subject. The emphasis throughout is on intelligibility; the reader who has mastered what is done here can approach the rest of the literature with confidence. The concluding chapter is Tate's thesis (Princeton, 1950), which has been seminal for later developments but was never published. **Contents include: Cohomology of Groups; Zeta-functions and L-functions; Semi-simple Algebraic Groups; Applications of Computers to Class Field Theory; Fourier Analysis in Number Fields.**

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The implications are far reaching. The cycle time for product design and specification and subsequent engineering changes has been greatly reduced; new vistas have opened in the field of publications; graphically recorded data for land formation and cloud cover have been processed and analyzed; new techniques have been made available for the rapid production of animated films and kinescopes. Most importantly, graphic data processing becomes intimately associated with on-line systems, adding completely new dimensions to the man machine interface.

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An Operations Research Approach

by George K. Chacko,
The MITRE Corp.

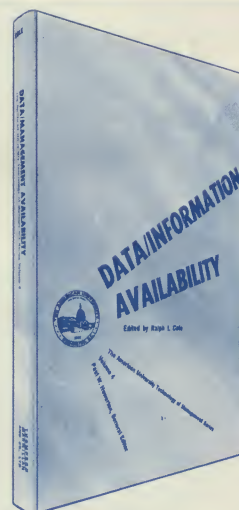
Here is a brand new, space age treatment of one of the oldest problems faced by management—that of decision-making. Dr. Chacko, a staff member of the renowned MITRE Corporation holds that insight into interrelationships is the essence of decision-making; that information for the decision-maker can be systematized to a great extent so that the decision-maker can be more readily aware of the missing links in his information structure.

Today's Information for Tomorrow's Products is concerned with strategies of policy instead of with techniques of suboptimization. Drawing its illustrations and case histories from real life, the book develops an integrated way of looking at widely varying entities that enter into decision-making with respect to tomorrow's products—consumer products, durable goods, weapons systems, space technology and hardware, and services of all types. Employing only a bare minimum of mathematics, *Today's Information for Tomorrow's Products* will be of interest to all persons working in management research and operations, as well as to graduate and undergraduate students in these and related fields. Theory and practice are expertly blended in this highly lucid and engaging work by an international expert.

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Edited by Ralph I. Cole

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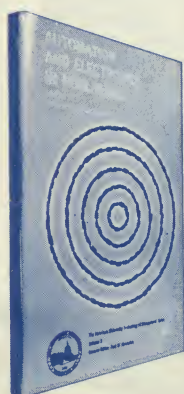
AND STATE ADMINISTRATORS by Harry H. Fite

This book concerns itself with the current and ever-present problems facing local and state officials in handling urban planning and the role and potentialities of the computer in solving these problems. The author is Harry M. Fite, the Manager of State and Local Government Marketing for the UNIVAC Division of Sperry Rand. He is presenting the results of his experience and research, as given at meetings and conferences of local government officials, relating to the awakening need for computers in the public sector of human affairs. The articles were written and given to government top managers and designed to alert them to the fact that the growth of computer technology is of vital importance and usefulness to them. Some of the topics covered are: Automation and Management Education; Sounder Decisions in City Government; Municipal Process Control; Centralized Computer Traffic Control; Evolution of ADP in State Government; Automation of a State Revenue Department.

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